Atlantic Richfield Company

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Appendix 1A

Response to NDEP Comments Dated January 13, 2021 for the Draft Combined OU-4b-5-6 RI Report

Appendix 1A Table 1A-1
Response to NDEP Comments Dated January 13, 2021 for the Draft Combined OU-4b-5-6 RI Report
Anaconda Copper Mine Site
Lyon County, Nevada

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
General Comments				
The high-level comment/direction to be conveyed for the Draft Combined OU-4b, 5, and 6 RI Report is that ARC is directed to revise and finalize the Report according to the following general and specific comments and direction. Submit the Final RI Report by March 15, 2021 and provide a Response to Comments (RTC) Table as an appendix to the Final RI Report.				
G1	**General, ES**	**Minor comment.** Starting on page ES-3 and repeated on ES-5, 21, 34 and 35, the document refers to a "pre-mining playa" such as on ES-3: *"the presence of a pre-mining playa-like deposit in the area may have resulted in enrichment of COIs. Therefore, in the OU-4a RI comparison of COIs to Sub-Area A-1 BCLs is a conservative approach, and the background soil concentrations for the depositional environment beneath OU-4a are likely to be higher than the Sub-Area A-1 BCLs (CEC, 2019)."* [Ref: *Copper Environmental Consultants (CEC), 2019. Final Remedial Investigation Report, Evaporation Ponds Operable Unit (OU-4a), Anaconda Copper Mine Site, Lyon County, Nevada, Prepared for Atlantic Richfield Company. December 13*]	Include historical photos of the playa appended in the Final Report.	Historical aerial photographs including those showing the pre-mining playa deposits have been added to a new Appendix 2B.
G2	**General**	**Minor comment.** Under each OU section, a Preliminary Conceptual Site Model (CSM) is presented that describes the physical setting and potential transport pathways. Subsequent sections provide further CSM-related information such as stratigraphy and hydrogeology (Section 4.4, 5.4) or just hydrogeology (Section 6.4), which would typically be included in the CSM. After the data are presented for each section, an updated CSM is presented, which presents what has been learned about the distribution of contaminants and potential release mechanisms but does not update most of the information presented in the Preliminary CSM section.	Consider reorganizing each OU section to include all of the information relative to the CSM together, wrapping the information presented in the Updated CSM sections into the results summary sections.	The preliminary CSM has been retained in its existing location, to represent that it was the basis for the sampling design presented in the FSAP and for the preliminary understanding of the OU. However, the information presented in the preliminary CSM has been added to the updated CSM so that all relevant information is presented in one place.
G3	**General**	Radium-226 is considered as a combination of Radium 226/Radium 228 in risk assessment and regulations. For example, EPA has established a Maximum Contaminant Level (MCL) of 5 pico-Curies per liter (pCi/L) for any combination of radium-226 and radium-228 in drinking water. EPA has also established a MCL of 15 pCi/L for alpha particle activity, excluding radon and uranium, in drinking water (EPA, 2020). Although radium-226 is presented as a COI, data for radium-228 is omitted from the discussion but is applicable to future risk assessment activities as they relate to groundwater, surface water and MWMP results.	Include both radium-226 and radium-228 data as COIs.	Radium-228 has been added as a COI for OU-4b, OU-5, and OU-6 RI Report.
G4	**General**	Several sections of the Report discuss statistical evaluation of the data. However, the management of non-detect results was not discussed.	Specify the method used to manage non-detect results in each section describing statistical methods.	For results reported as non-detect, the statistical testing utilized the non-detect value in the calculation, following the technical guidance presented in the ProUCL software. This has been specified in the text in Sections 4.5, 5.5 and 6.5.

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Specific Comments				
S1	**P.5, §2.2.2.3**	**Minor comment**. The acronym "SWRA" for South Waste Rock Area, is already in use at the site as "Southwest Recharge Area" in the OU-1 RI (Copper Environmental Consulting, 2020) and other documents. Its use in this document is sometimes confusing.	Ensure the acronym "SWRA" is properly defined each time, and consistently with the context in which it is used.	The document has been revised to use the term South WRA, to distinguish it from the Southwest Recharge Area (SWRA).
S2	**P.5, §2.2.3, ¶1**	The text states that the average height of VLT in OU-6 exceeding 100 feet, with an estimated maximum thickness of 190 feet.	State how estimates of the height, thickness, and volume of the OU-6 VLT pile(s) were determined. If this information was derived from prior studies, cite those reference(s).	The average height was taken from the CH2M Hill 2010 Historical Summary Report, and the maximum thickness was derived using the GMS software package, which is described further in Appendix 2A. Both these references have been added to the text in Section 2.2.3.
S3	**P.7, §3.1, ¶1**	**Minor comment**. Although the Report references the Yerington Paiute Colony, it should include the Walker River Paiute Reservation and Schurz when discussing population centers in the region, plus the historic Town of Mason, which is now part of the City of Yerington.	Include the Walker River Paiute Reservation and Schurz in the list of nearby communities. In addition, list the historical Town of Mason.	The text in Section 3.1 was revised to include the Walker River Paiute Tribe Reservation, Schurz, and the Town of Mason.
S4	**P.7, §3.1, ¶2**	**Minor comment.** The Report does not mention Tribal uses.	State in the paragraph that the ACMS is within ancestral Tribal lands and that, historically, there may have been Traditional Tribal Lifeways (TTL) practiced there.	Section 3.1 is intended to describe current and relatively recent demographics and land use practices. Statements about the extent of ancestral Tribal lands and historic TTL practices that may have occurred pre-mining but not within OU-4b, 5, and 6 since the start of mining activities do not provide relevant context for the RI. Ethnohistoric statements have not been included in the RI reports for other OUs. To avoid confusion, the word "Historically" has been removed from the first sentence of the second paragraph of Section 3.1.
S5	**P.9, §3.5, ¶1, last line**	The text states that groundwater velocities at the Site are low, ostensibly because the total recharge is only 13 gpm. It is the hydraulic gradients, hydraulic conductivities and effective porosities that determine groundwater velocities. Aquifers that receive little or no recharge can still have very fast groundwater velocities.	Remove the sentence, *"As a result, groundwater velocities at the Site are low"*.	The discussions of groundwater velocities were originally presented in Section 4 of the approved Plume Stability Technical Memorandum (PSTM) (SSPA, 2019). It is also presented in Appendix M of the FRIR for OU-1 (CEC, 2020) which has also been approved by NDEP. In order to maintain consistency with these prior documents, the statement has been retained as originally presented. As the comment indicates, one of the drivers impacting groundwater velocities is hydraulic gradient. The PSTM inferred that recharge (or lack of it) has largely affected groundwater velocities because the recharge has impacted groundwater gradients. A reference to the PSTM has been added to Section 3.5.

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S6	**P.9, §3.5, ¶3, last line**	The text stated that an analysis of net infiltration and recharge conducted for the ACMS and surrounding areas showed that recharge resulting from precipitation in the low-lying portions of Mason Valley (including the ACMS) is zero (BC, 2014). However, the BC study was conducted under current conditions, which are likely to continue for the foreseeable future. It is known that COIs beneath OU-4b are elevated, suggesting that COIs may have leached to groundwater earlier during the operational period of the Anaconda mine.	Discuss potential for historical releases from OU-4b, either in this section, or refer to another section that contains the relevant information.	Section 4.7 of the RI has been modified to acknowledge past mining and mineral processing activities that may have affected subsurface conditions. A reference to this section has been added to Section 3.5 as well. Historical aerial photographs have been presented in a new Appendix 2B, which suggest that prior to the sulfide ore processing, acidic oxide process water from vat leaching operations as well as calcines were discharged to OU-4b. However, the duration of this discharge was limited and ceased once the sulfide ore processing took place. The extent of discharge to OU-4b was constrained and appears to be generally confined to the southwestern portion of the OU. However, any impacts from the acidic oxide process water would have been neutralized once discharge of the alkaline sulfide tailings began. As these tailings accumulated in OU-4b, they covered the potentially impacted soil and prevented any future exposure, as described further in Section 4.7.
S7	**P.9, §3.5, ¶4, bullets**	**Minor comment.** The text outlined the designated groundwater zones, and their elevation ranges relative to mean sea level. Although it is recognized that depth-to-water varies by location, it would be beneficial to specify general depths to groundwater for the RI areas.	Provide average depths to groundwater (relative to the estimated pre-mining ground surface) for the OU-4b, 5, and 6 areas.	A general range of depth to groundwater levels has been added to Section 3.5.
S8	**P.10, §3.7, bottom of page, and Figure 3-1**	**Minor comment.** The text states that land ownership is shown on Figure 3-1. The land boundary lines are delineated with a thin black line that is not identified on the legend.	Identify property boundary line in the legend.	This comment has been addressed on Figure 3-1 as requested.
S9	**P.11, §4.1.1, ¶2, line 2**	**Minor comment.** The text states that the VLT cap varies in thickness between 1.5 to 4 feet, but on page 17, the VLT cap thickness is stated to be between 0.5 and 14.5 feet (§4.4).	Revise the document to align the VLT cap thicknesses or explain the differences.	The reported 1.5 to 4 feet VLT thicknesses were those observed during the 2010 investigation. The 0.5 to 14.5 feet VLT thicknesses were those observed during the 2019-2020 investigation. Because the 2019-2020 investigation had a broader spatial coverage, the thicknesses observed during the 2010 investigation are less relevant and have been removed from the RI Report to avoid confusion.
S10	**P.12, §4.1.2, ¶4**	The Report states that leak detection well ST-A has remained consistently dry, citing a reference dated 8 months after the well was installed. It is unclear whether ST-A is currently dry.	Clarify when observations were made on leak detection well ST-A and whether the well is currently dry.	Well ST-A was monitored during a recent site visit in February 2021 and was confirmed to be dry. This observation has been added to Section 4.1.2.
S11	**P.12, §4.2, 4.7.3, §5.2, and §6.2**	**Minor comment.** This section is titled “Preliminary Conceptual Site Model” but only consists of a description of the Physical Setting (§4.2.1) and Potential Transport Pathways (§4.2.2), and almost the entire discussion is deferred to §4.7. This comment also pertains to §s 5.2 and 6.2.	Recommend deleting §4.2 and moving §4.2.1 (Physical Setting) to before §4.1. §4.7.3 does not need the word “updated” in front of Conceptual Model. The same recommendations are made for revising §s 5.2 and 6.2.	As described in the response for Comment G2, the preliminary CSM has been retained in its existing location, to represent that it was the basis for the sampling design presented in the FSAP and for the preliminary understanding of the OU. However, the information presented in the preliminary CSM has been added to the updated CSMs in Sections 4.7.3, 5.7.3, and 6.8 so that all the relevant information is presented in one place.

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S12	**P.13, §4.2.1, ¶1**	**Minor comment.** The text states that the primary potentially impacted media in OU-4b are sulfide tailings and associated VLT cover materials. However, sulfide tailings and VLT would be more accurately characterized as *source* materials because they are known to contain COIs.	Change the description to source materials.	Section 4.2.1 has been modified to acknowledge that the sulfide tailings and VLT are potential source materials.
S13	**P.13, §4.2.1, ¶3, and P.64, §6.2.1, ¶3**	The text states that the primary sources of metals and radionuclides are soils/solids, and the primary release mechanisms are particles/dust and storm water runoff. The sources are specifically sulfide tailings and VLT, which were known prior to the initiation of the RI and represents information that needs to be included in the Preliminary CSM.	Revise the cited text to state that the primary sources of metals and radionuclides are sulfide tailings and VLT and that the potential primary release mechanisms are in the form of solid particles released as wind- blown dust and colloidal transport with storm water runoff.	Section 4.2.1 has been modified to acknowledge that the sulfide tailings and VLT are potential source materials, and Section 6.2.1 has been modified to acknowledge that the VLT is a potential source material. The primary release mechanisms in each section have been updated as well.
S14	**P.13, §4.3.1**	**Minor comment.** One of the major objectives of the RI is to identify a suite of potential contaminants from which the risk assessments further refine into Constituents of Interest (COIs) for human and ecological receptors. Since this objective has not been identified as a separate DQO the discussion related to meeting the COI delineation DQO is intermixed with the identification of COIs. This approach makes it difficult for the reader to follow whether the statistics are supporting the delineation determination or identifying potential COIs. Unless more clarity can be added to this document, it is recommended that in future QAPPs the identification of COIs is a separate DQO from that associated with defining the extent of contamination	Clarify how the statistical approach distinguishes COIs.	Comment noted with respect to future QAPP documents. The selection of COIs is described in Section 4.6.1, which describes the rationale for COI selection. Section 4.6.1 has also been expanded to emphasize that the COIs presented in the RI are to focus the characterization and discussion of nature and extent, and fate and transport of contaminants. They are not intended to replace the screening and identification process that will take place in the future HHRA and SLERA.
S15	**P.14, §4.3.2, ¶1, line 4**	The text states that to provide a sufficient and statistically valid dataset for the RI and risk assessments, soil samples were collected at a total of 35 randomly selected locations throughout OU-4b. It is noted that the FSAP (P. 22) determined that a sample size greater than 30 would be sufficient to characterize the extent of COIs and to calculate statistics needed to support risk assessments, citing consultations between ARC and NDEP risk assessment teams. However, there was no further discussion as to what factors influenced the determination of the appropriate sample size.	Discuss the basis for the determination that 35 sampling locations are sufficient for site characterization and risk assessment purposes, citing appropriate guidance documents. Clarify the distinction between sample size and sample location, as the FSAP refers to sample sizes in this context.	During the finalization of the FSAP, a similar comment was raised by the NDEP. Consistent with ARC's response at the time the FSAP was prepared, the number of samples selected to represent a valid data set for characterization of OU-4b and OU-5 waste materials was based on calculations for VLT in OU-6. Based upon the small datasets available at the time the FSAP was prepared, there were not enough data within OU-4b and OU-5 to calculate how many samples would be needed to support statistical analysis. VLT is a generally chemically homogeneous material having been thoroughly beneficiated under controlled conditions, and as such a sample size calculation was performed which determined the VLT sample size of 35. As OU-4b materials also underwent extensive, controlled beneficiation, the sample size of 35 was considered appropriate. This same sample size was considered appropriate for the South WRA materials in OU-5 as well. The South WRA materials are comprised of naturally occurring unconsolidated material that overlie the mineralized material and ores. Because of this rationale, sampling was performed as described in the

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				NDEP approved FSAP. As a result, the sampling scheme, including number of samples to be collected, were sufficient for characterization of the nature and extent of possible contamination and characterization of exposure concentrations for human and ecological receptors. With respect to sample locations and sample size, there are 35 locations with multiple sample depths at each location, as described in Section 4.3.2.2 of the RI Report. This sampling approach resulted in a sufficient number of samples at consistent depths to allow for statistical comparisons in the RI as well as in the forthcoming risk assessments.
S16	**P.14, §4.3.2, ¶1, line 5**	The text states that native soil beneath OU-4b was characterized by advancing 6 boreholes 20 feet into native soil. The FSAP (P. 22) noted that a minimum of 10 samples are ideal for calculation of the 95 UCLM. It is unclear whether there are enough samples from 6 boreholes to satisfy the FSAP requirement.	Discuss how sampling from 6 boreholes satisfies the FSAP requirement for a minimum of 10 samples.	As described in Section 4.3.2.2., there are two native soil samples collected from each of the six deep borings, resulting in a total of 12 samples. In addition, the native soil samples were collected to assess the nature and extent of contamination. Because the native soil is buried beneath the sulfide tailings, it is highly unlikely that there would be an exposure pathway to the native soil, making calculation of a 95 UCLM unnecessary.
S17	**P.15, §4.3.2.1, ¶3, line 3**	The text states that calcine was encountered in only one OU-4b borehole, comprising less than 1% of the materials observed during drilling. However, the nearest boreholes that reached similar depths are approximately 2000 feet away. As such, there is uncertainty in the geochemical properties, extent and volume of the calcine material emplaced in OU-4b.	Discuss uncertainty in the geochemical properties, extent and volume of the calcine emplaced in OU-4b, and discuss the implications for the ensuing risk assessments and FS.	The report has been revised to address the uncertainty in the extent of calcines in OU-4b. Historical aerial photographs presented in Appendix 2B show that calcines were generally confined to the vicinity of the calcine ditch and the western portion of OU-4b during mining operations. The aerial photographs also indicate that calcine discharge into OU-4b only occurred early on in mining operations and was only over a small portion of OU-4b. During the 2019-2020 investigation, calcines were reported in STSB-02 at a depth of greater than 40 feet and were not detected in any other borehole. From this and the aerial photographs in Appendix 2B, the extent of calcines under the sulfide tailings is limited and there is no complete exposure pathway to the calcine material. As described in Section 4.7, transport of COIs from the calcines to the underlying soil and groundwater is currently unlikely. As a result, it is unlikely that the presence of calcines in OU-4b will have a significant effect on the ensuing risk assessments and FS.
S18	**P.16, §4.3.2.1, ¶1, line 1**	**Minor comment.** The text states that drill core remaining after sample collection was placed into labeled core boxes and photographed.	Include representative photographs of OU-4b source materials (VLT, sulfide tailings, calcine, and native soil) in the Final Report.	Representative core photographs have been added to Appendix 4B.
S19	**pp.14-16, 4.3.2, et. seq.**	**Minor comment.** The text states that deep boreholes were backfilled with bentonite cement grout to approximately 40 feet above the total depth followed by hydrated bentonite chips to ground surface, but the SOP 104 did not provide for using bentonite chips for upper plugging. This highlights the issue of the extent to which FSAP field operation and	List and describe significant differences between field operation and sampling protocols during RI work and those prescribed in the FSAP, or reference that part of the document or appendices where this information is located.	ARC followed the requirements in SOP 104 (Borehole and Monitoring Well Plugging) during implementation of the OU-4b and -5 RI field investigation. ARC agrees that Section 7.3 of SOP 104 states “Concrete grout, cement grout, or neat cement shall be placed from 20 ft bgs to the surface” when decommissioning dry soil boreholes. However, Section 7.2

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		sampling protocols were followed for the RI work.		of the SOP states "Waivers must be submitted to the state, as described in NAC 534.450, if different methods are required. For example, a waiver is necessary if it is not feasible to fill the borehole with grout from 20 feet below ground surface (ft bgs) to the surface and alternate materials such as bentonite chips are needed instead." ARC's drilling subcontractor contacted the Nevada Division of Water Resources (NV DWR), the agency in charge of borehole plugging, prior to drilling and asked if a waiver was necessary for using bentonite chips when filling the upper interval of the deep boreholes. The NV DWR stated a waiver was not necessary if the boreholes advanced into native soil were backfilled with cement from the native soil surface to 20 feet below that surface. The NV DWR also stated that boreholes where native soil was not encountered could be backfilled with "uncontaminated fill." The drilling subcontractor used bentonite chips instead of "uncontaminated fill" and cement grout in the deep boreholes where native soil was encountered, satisfying the requirements of the NV DWR and SOP 104.
S20	**P.16, §4.3.2.2, ¶2, last line**	The text states that prior to being placed in sample containers, the sampled material was homogenized then placed in the appropriate sample container in accordance with FSAP SOP 304 – Soil Sampling. SOP 304 states (P.1) that detailed records will be maintained during sampling activities, particularly with respect to location, depth, color, odor, lithology, hydrogeologic characteristics, and readings derived from field monitoring equipment. However, there are no notes regarding PID, NAI, or other readings on the lithologic logs.	Discuss whether any field screening was performed of the material removed from the borehole and, if so, whether any elevated measurements were observed.	No field screening using a PID or NAI was performed. SOP 304 states "The collection techniques and equipment selected are dependent on the nature of subsurface soil conditions." Based on the nature of the materials in OU-4b (no reported or reasonable suspicion that volatile compounds might be present in these OUs), field screening was not considered beneficial for the purposes of the RI and was not planned in the approved FSAP.
S21	**P.17, §4.4, ¶1**	**Minor comment.** The text states that Figures 4-2 and 4-3 show the OU-4b lithology based on the recent 2019-2020 investigation, as well as monitoring well B/W-37. The cross-section figures (Figures 4-2 and 4-3) indicate that the slope faces (at A' and B respectively) are covered with relatively thick layers of VLT material.	Discuss how the slope-face VLT thicknesses for OU-4b were determined.	The Site Wide CSM (BC, 2009) stated that the tailings embankments were constructed using VLT, which is the basis for their representation on Figures 4-2 and 4-3. In addition, the figures have been modified to state that VLT thickness of the embankments are approximate.
S22	**P.18, §4.4, ¶2**	The text noted the elevation ranges for the top of native soil beneath the sulfide tailings and the top of the shallow water table. In addition, the text describes that the vadose zone (native alluvium) ranges in thickness of approximately 15 to 70 feet thick, based on elevation comparisons. It must be noted that the stated thickness of alluvium beneath the sulfide tailings depends on what *pairs* of elevations are compared, which is not stated clearly in the text.	Revise for clarity and provide elevations for the tops of the boreholes, either in a table, or on the lithologic logs.	Section 4.4 has been revised for clarity, and borehole elevations have been added to a table presented in Appendix 4B.

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S23	**P.18, §4.5.1, ¶s 4, 5**	**Minor comment.** The text states that no work plan or DQO exists for the 2013 standing rainwater sampling. However, the next paragraph states that all laboratory data from 2010 and 2013 met the DQOs and QAPP requirements and were considered usable for this RI and the forthcoming HHRA and SLERA. There is an apparent inconsistency in these statements.	Clarify whether the 2013 standing rainwater sampling is usable for RI and risk assessment purposes.	Section 4.5.1. has been revised for clarity to state that the 2013 standing rainwater samples were collected under the Site wide QAPP in place at the time of sampling and were approved for collection by the U.S. EPA.
S24	**P. 19, §4.5.2.2, ¶2**	The text noted that additional evaluation was performed on three OU-4b samples potentially affected by inclement weather-affected decontamination procedures. It is not clear what additional evaluations were performed, and no other references to these evaluations were found in the text.	Describe the additional evaluations performed on the three affected OU-4b samples. Include the results of the evaluations in the text of the Final RI and provide a reference to the appended document(s) that contains this information.	Section 4.5.2.2 has been revised to include information on the comparison of these samples to other non-affected samples, and a reference to the analytical data tables where the specific sample data is located.
S25	**P.19, §4.5.2.2, ¶3, bullet 2, and P. 46, §5.5.2.2, ¶3, bullet 2**	The text states that only results from primary samples were used for the presentation and evaluation of chemical data, and that results for field duplicate samples are retained in the database, but they were not used during data evaluation in compliance with the site-wide 2018 QAPP. The text did not discuss further the data evaluation for field duplicates.	Summarize the evaluation of the field duplicates data and confirm that DQIs established in the 2018 QAPP were followed.	The evaluation of field duplicate data was included in the Data Quality Summary Report, which is presented in Appendix 4C-1 for OU-4b and in Appendix 5D-1 for OU-5. Additional references for these appendices have been added to the text in Sections 4.5.2.2 and 5.5.2.2.
S26	**P.20, §4.5.2.3, and P.46, §5.5.2.3, and P.68, §6.6.2**	**Minor comment.** The Report noted that EPAs ProUCL Version 5.1 was used to evaluate the population distribution of metals data for OU-4b, SWRA, and OU-6. Statistical results are summarized in several tables, but the ProUCL output data is not appended to the document.	Append the ProUCL output data in the Final Report.	The ProUCL outputs from the statistical testing has been provided in Appendix 4E (The original Appendix 4E has been renamed to Appendix 4F).
S27	**P.20, §4.5.2.4**	**Minor comment.** With reference to assumptions of the statistical method, the text states that autocorrelation and clustering were not expected to occur, based on sampling design. However, this was not mentioned in the FSAP and was not discussed further in the Report.	Discuss the assumptions that autocorrelation and clustering were not expected to occur. Cite other sections of the Report or appendices where this is discussed or demonstrated.	Section 4.5.2.4 has been revised to reference the random sampling in grids approach specified in the FSAP, which is the basis for the assumption presented in the section.
S28	**P.21, §4.6.1, ¶1, sentence 4**	**Minor comment.** The Report states that screening and evaluation of all "analytes of interest" will be addressed in the HHRA and SLERA. It is unclear what an "analyte of interest" is.	State that all analytes will be addressed.	This comment has been addressed in the RI Report as requested.
S29	**P.21, §4.6.1, ¶3, and P.48, §5.6.1, ¶2, all bullets, P. 67, §6.6.1, ¶3**	The text states in several places that analytes detected above their respective BCLs in more than 10% of the sample population were retained as COIs, with others excluded based on the 10% cutoff value. In addition, the text stated that analytes with no BCL were not retained as COIs. These decisions are best suited to the risk assessment, not the RI.	Retain all constituents as COIs pending the risk assessment vetting process. Include Chromium as a COI, because it was detected in 10.2% of the samples.	Sections 4.6.1, 5.6.1, and 6.6.1 have all been expanded to emphasize that the COIs presented in the RI are to focus the characterization and discussion of nature and extent, and fate and transport of contaminants. They are not intended to replace the screening and identification process that will take place in the future HHRA and SLERA. Consequently, all analytes are presented in the RI, but the more focused discussions are limited to those designated as COIs Chromium has been added as a COI as it meets the criteria presented in Section 4.6.1. Additionally, ARC reviewed the project files and verified the list of analytes for the ACMS. Chromium, as well as the other COIs presented in the RI are indicated as proposed analytes in Table 5 of the

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				Hydrogeologic Framework Assessment North of the Anaconda Yerington Mine Site dated April 22, 2005. These analytes became COIs for ACMS. This supports that the COIs presented in the RI are appropriate for discussion and evaluation in the RI for OU-4b, OU-5, and OU-6.
S30	**P.22, §4.6.2, ¶3, and §4.6.3, ¶1**	The text states that the coefficient of variation (CV) was used to assess variability in the different material types, noting that the CVs for each material type are less than the CV when all the materials are combined (Table 4-1), justifying the appropriateness of evaluating OU-4b material types separately. However, §4.5.2.3 reported that ProUCL was used to determine that the dataset was non-parametric, which suggests that the median value (not the mean, the IQR/median) would be more appropriate for evaluating the data. Table 4-2 shows that the CVs are similar for some analytes in some of the material types, so relying on CVs alone for evaluating material types is not definitive and has some inherent uncertainties. Also, the text incorrectly references Table 4-1, when it appears to be Table 4-2 that is referenced. Also, the statistical information referenced in the cited text is in Table 4-2, not Table 4-1.	Change the references from Table 4-1 to 4-2, and check all other table and figure references to ensure consistency. Assess how a non-parametric test using sample medians to assess variability in OU-4b material types. Provide a citation for using the CV for a non-parametric dataset, or use a more appropriate approach for analyzing variability and separating populations within these data. Include all values used to calculate the CV or equivalent (e.g., the SD, IQR, mean, median, etc.) and include a discussion regarding how the data are distributed for each population once they are separated and whether the dataset becomes parametric or remains skewed.	The table reference has been corrected, and the entire document has been reviewed and revised to reference updated table, figure and appendix designations following the addition of components prepared following NDEP direction. Section 4.6 has been revised to include a discussion of the IQR in addition to the CV. The text has also been modified to clarify that because of potential uncertainties in its use, the CV is used as a supporting piece of evidence to other components that evaluate variability and trends in the data. Table 4-2 has been modified to include the standard deviation, 25th percentile, 75th percentile, and IQR, in addition to the mean and median values already presented.
S31	**P.23, §4.6.3.1**	The referenced section assesses COI differences by material type, depth, and location in the OU-4b area, using hypothesis testing. It was noted elsewhere in the Report that the total volume of VLT was determined to be about 6 million yd3 and the total volume of sulfide tailings determined to be about 49 million yd3. There is only a 15% difference (50%-35%) in the number of VLT and sulfide tailing samples (62 vs. 77) collected even though the volume of sulfide tailings is about 6 times greater.	Discuss how the hypothesis testing may have been affected by sampling frequency and sample compositing.	While the proportions of VLT and sulfide tailings samples are closer together than the overall proportions of VLT and sulfide tailings volumes, the large number of samples (greater than 60) of each material type result in representative data populations. Because the populations are representative, the affect, if any, on the hypothesis testing is likely minimal.
S32	**P.23, §4.6.3.1, ¶1, bullet 1**	The text states that the results of the statistical testing are shown on Table 4-6, and box plots showing the differences in the material types are shown on Figures 4-5 through 4-9. Details were not provided as to whether the statistical tests were based on median or mean values, nor was there discussion regarding the statistical approach used to support conclusions/observations.	Discuss how the p-values listed in Table 4-6 were calculated. If the values were calculated on the mean, provide justification for using this approach for a non-parametric dataset.	As stated in Section 4.5.2.3, non-parametric statistical tests were used that were based on median values, not on mean values. Accordingly, the statistical tests chosen were appropriate for the data types. Table 4-6 presents median values, in addition to the results of the statistical testing.
S33	**P.23, §4.6.3.1, ¶1, bullet 2, and Table 4-7**	Table 4-7 shows statistical significance for each COI when comparing 0-6 and 6-15 feet. The table also shows only three COIs that are not statistically significant when comparing 0-3 and 3-6 feet, which is consistent with Table 4-6. However, the text states that the observed variability in the upper 15 feet is not primarily controlled by depth. Iron appears missing from Table 4-7.	Add additional text describing the apparent statistical significance of COI distribution with depth below 3 feet as indicated on the table. Also, add iron to Table 4-7.	Section 4.6.3.1 has been clarified to state that depth is a factor in the variability seen in the upper 15 feet, but that the changes in material type by depth (where VLT consistently overlays the sulfide tailings), and the differences between the VLT and sulfide tailings are also controlling factors. Iron has been added to Table 4-7.
S34	**P.23, §4.6.3.1,**	Table 4-8 provides a comparison of VLT and sulfide tailings at two	Correct §s 4.7.3 and 4.8 to state that sulfide tailings and	Section 4.7.3 and 4.8 have been revised to include the differences

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	¶1, bullet 3 and Table 4-8; P.§4.7.3, and §4.8	locations in OU-4b. It appears that there are significant differences in COI concentrations between the two locations, because 4 of the 9 metals were noted to have significant differences for the two materials, as shown in Table 4-8. This is contrary to frequent statements in the document, including in §4.7.3, that sulfide tailings and VLT "*generally display a consistent range of concentrations across OU-4b*." The variable conditions are not unexpected because of natural variability in the compositions and sources of ore material and variability in the processes involved to optimize copper recovery.	VLT exhibit spatial differences for some COIs in OU-4b.	between the southern and northern areas, as indicated in Table 4-8. In addition, the remainder of the document has been reviewed and the executive summary and Section 8.1 have also been modified for consistency.
S35	**P.23, §4.6.3.1, ¶3**	**Minor comment.** The report states that COIs from STSB-05 and STSB-33 do not show a discernable difference in COIs from surrounding locations. However, a review of the data does show discernable differences.	Revise the sentence to say that the data shows some similarities.	This comment has been addressed in Section 4.6.3.1 as requested.
S36	**P.23, §4.6.3.1, ¶4, and Table 4-9; P.49, §5.6.3, ¶3, and Table 5-5**	Table 4-9 presents a comparison of COI results for three different sampling investigations in OU-4b, noting that comparisons between the investigations show spatial similarities, but no comparisons with depth, such as that provided in Table 5-5 for the SWRA. Comparisons with depth can provide insight into the potential COI variability in OU-4b and the OU-5 SWRA that may guide future FS activities.	Present COI comparisons by depth for OU-4b materials. Quantify the comparisons between the different sampling investigations, for example whether the 2010 Cover Materials data fall within the range of the more recent data for OU-4b and the OU-5 SWRA and interpret the differences.	Because of the different sampling intervals between the investigations, as well as the lack of sampling by depth in the Cover Materials investigation, a comparison by depth for OU-4b materials is not possible between the 2019-2020 and the historical investigations. Table 4-7 presents the equivalent depth information for OU-4b. The same is true for the South WRA, where it should be noted that Table 5-5 is a comparison by depth for the 2018 and 2019-2020 investigation only as stated (Table 5-5, Note 1). Rather than quantifying the comparisons between the investigations, the qualitative observations presented in Section 4.6.3.1 and 5.6.3 are more appropriate when comparing datasets of a dissimilar size, as shown on Table 4-9 and Table 5-6.
S37	**P.24, §4.6.3.2, ¶1**	**Minor comment.** The statement: *"The soil COI geochemical trends are plotted on maps and cross- sections using a consistent color-coding scheme. Concentrations at or below the applicable BCL are shown in green. Concentrations between the BCL and 10 times the BCL are shown in yellow. Concentrations between 10 times the BCL and 100 times the BCL are shown in orange. The intent of the color-coding scheme is to help the reader visualize spatial variations in the COI concentrations."* It is not clear which maps and cross sections have this color-coding.	Provide references to appropriate maps and figures that clearly depict the color-coding scheme.	An additional reference for the figures utilizing this color coding has been added to the first paragraph of Section 4.6.3.2
S38	**P.24, §4.6.3.2, ¶2, lines 10-11**	**Minor comment.** The documents states: "*Since only one sample contained calcines, they are not discussed in this section, however, the results for calcines are summarized on Table 4-1.*" Table 4-1 does not include data on Calcine. Table 4D-1 does, but the sample appears to be marked "Sulfide/Calcine".	Correct the references.	This comment has been addressed as requested, Table 4-2 is the correct reference.

Appendix 1A Table 1A-1
Response to NDEP Comments Dated January 13, 2021 for the Draft Combined OU-4b-5-6 RI Report
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S39	**P.24, §4.6.3.2, ¶2**	The text states that 175 samples were collected and that 61 were VLT. Table 4-2 and the database show 176 samples, of which 62 were VLT. It is unknown which is correct. In addition, it is difficult to discern the sulfide tailings-VLT mixture from the borehole logs. Furthermore, the section stated that mixed tailings- VLT samples show characteristics of both material types, but most of the mixed samples have small fractions of one material type or the other with predictable dilution of sulfide tailings-VLT signatures.	Correct the apparent sample count errors, in the text or in the table. Explain why samples containing VLT and sulfide tailings are described as mixed and address the bias within these samples as it relates to the relative quantity of one material or the other in the samples.	176 is the correct sample number, and the text has been revised accordingly. In addition, all figures and tables have been checked to ensure that 176 samples were used in any evaluation steps. Minor updates have been made where needed, however, no evaluation conclusions or results have changed as a result of the updates. The text has also been revised to state that while the mixed samples show characteristics of both material types, samples that proportionally contain more VLT than sulfide tailings are more similar to samples containing only VLT, and vice versa.
S40	**P.24, §4.6.3.2, ¶2, last sentence**	The text does not describe the calcine sample, even though this sample had some of the highest concentrations of analytes and BCL exceedances of antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, mercury, molybdenum, nickel, radium-228, selenium, thallium, thorium, and uranium. Arsenic and thallium concentrations are greater than 10 times BCLs in this sample. In addition, the native soil underlying the calcines had detections above BCLs in arsenic, copper, molybdenum, selenium, and uranium, suggesting the potential for leaching.	Discuss the implications of calcine deposits in OU-4b and describe the detected analytes. Estimate the extent of the calcine material in OU-4b using an appropriate interpolation technique and available boreholes.	As described in the response for Comment S17, there is some uncertainty in the extent of calcines in OU-4b, although from the historical aerial photographs presented in Appendix 2B the area of calcine deposition in OU-4b is only a small portion of the overall OU. Calcines were reported in STSB-02 at a depth greater than 40 feet and were not detected in any other borehole, therefore, there is no complete exposure pathway to the material. As described in the response for S6, past mining operations, including discharge of calcines, may have affected subsurface conditions. However, as described in Section 4.7, transport of COIs from the calcines to the underlying soil and groundwater is currently unlikely. As a result, it is unlikely that the presence of calcines in OU-4b will have any significant implications on the ensuing risk assessments and FS. A discussion of the calcine results has been added to a new Section 4.6.3.3.
S41	**pp. 24-28, §4.6.3.2**	**Minor comment.** As an example of several similar statements in the section, *"Twenty-three sample locations had at least one VLT sample with a concentration above the antimony BCL of 0.94 mg/kg."*.	Include the total number of samples when reporting the number of samples that exceeded a BCL.	In the example presented, 23 refers to the number of locations, as opposed to samples, which exceed the BCL. When locations are discussed, the total number (35) of locations has been added. For instances when samples are discussed elsewhere in the document, the total number of samples (176) has been added.
S42	**P.24, §4.6.3.2, ¶3, bullet 3, and P.26, §4.6.3.2, ¶3, bullet 3**	The text states that maximum antimony and mercury concentrations in the mixed sulfide tailings/VLT samples were detected at location of borehole STSB-04 at a depth of 0.5 to 3 feet bgs. However, the borehole log for STSB-04 indicates that the VLT/sulfide tailings contact was at 3 feet bgs.	Verify the sample depth for STSB-04 and, if it is correctly reported on the boring log, revise the text and statistical calculations that included this sample accordingly.	The field logs for borehole STSB-04 has been reviewed and the VLT-sulfide tailings contact was found to be at 2.75 feet, making the 0.5-3 foot sample a mixed sulfide tailings/VLT sample. An updated borehole log for STSB-04 has been included in Appendix 4B. Because the material classification was confirmed, no revisions are needed for the text and statistical comparisons. In addition, all other boring logs were reviewed and it was confirmed that no other inconsistencies in sample material classification were present.
S43	**pp. 29-30, §4.6.4.1**	pH is not discussed in the MWMP results.	Discuss the pH results from the MWMP samples.	A discussion of pH has been included in Section 4.6.4.1.

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S44	**P.30, §4.6.4.1, ¶s 3, 4, and 5**	The paragraphs describing detections in MWMP samples are confusing when addressing relative mobility. For example, the Report states that antimony, iron and molybdenum, which were detected in 40%, 55%, and 64% of MWMP samples, when compared to solid samples, would be expected to be less mobile than the other COIs, which include mercury and radium-226 at 13% and 51% detection (i.e. less than or equivalent to). One example where this comparison did not work relates to selenium, which was detected in 88% of the samples, so selenium seems quite mobile. Furthermore, the Report noted that there are inconsistent trends in MWMP COI concentrations. Given the variety of material types and the inconsistent trends in MWMP results, there is uncertainty in assigning relative mobilities to COIs.	Revise these paragraphs for clarity. State that selenium appeared relatively mobile compared to most COIs. Acknowledge uncertainty in assigning relative mobility to COIs given the variety of material types and mixtures.	Section 4.6.4.1 has been revised for clarity, and to acknowledge the relative mobility of selenium. A discussion of uncertainty in COI mobility has also been added to the section. In addition, an emphasis that MWMP is a highly conservative approach and likely overestimates COI concentrations and corresponding mobility has also been added to the section.
S45	**P.31, §4.6.4.2, ¶1, and P.32, §4.6.5, ¶4**	The text states that the total dissolved solids concentration from the sample was 17,000 mg/L, and the measured pH value was 2.71, suggesting an evaporative mechanism for these values. While evapo-concentration is a known mechanism for concentrating dissolved solids, it is unclear how evapo- concentration alone can explain the low pH of 2.71, given the short time frame (6 days after the rainfall event) that the rainwater was pooled on the OU-4b pile before sample collection. Given that the pH of rainwater is between 5 to 6, a pH value of 2.71 suggests that the saturated material beneath the standing water may have contributed to the acidic character of the sample, despite the claim that acidic conditions are not assured due to limited contact between surface water and OU-4b source materials (P.32, §4.6.5, ¶4). It is likely that the rapid dissolution of soluble efflorescent metal salts on the surface of the OU-4b pile contributed to the low pH and high TDS (and metal concentrations) of the standing water sample.	Acknowledge in the Final Report that one possible mechanism for the low pH and high TDS of the standing rainwater sample is the rapid dissolution of soluble efflorescent metal salts on the surface of the OU-4b pile.	While soluble efflorescent metal salts have not been observed on the surface of OU-4b, Section 4.6.5 has been revised to acknowledge that their rapid dissolution is a potential mechanism for low pH and high TDS. However, this mechanism, if present, is not considered significant because of the ephemeral nature of standing rain water, the rarity of large rain events that would produce standing rain water, and the lack of surface water runoff pathways
S46	**P.32, §4.6.5, top ¶**	The text states that the sulfide tailings and the sulfide tailings-VLT mix had the highest number of PAG samples at 33% and 55%, respectively. The cited text does not consider that most of the mixed samples had predominance of one material or the other.	Discuss how the relative amounts of VLT and sulfide tailings in the mixtures influence the PAG results.	A discussion has been added to the text, noting that those mixed samples composed of a majority of VLT material are more similar to samples that are composed of entirely VLT material. In addition, the mixed samples composed of a majority of sulfide tailings are more similar to samples that are composed of entirely sulfide tailings material.
S47	**P.32, §4.6.5, P. 32, last ¶, Table 4-5, and P.36, §4.8, bullet 10**	The text states that, in general, sulfide tailings have a greater percentage of samples that can be classified as PAG, compared to VLT samples, and that sulfide tailings samples also have higher overall values of AGP. The text also noted that pyritic sulfur and total sulfur were generally detected similarly or more often and at overall higher concentrations in sulfide tailings samples compared to VLT, referencing Table 4-5. While the text noted that sulfide tailings contained higher	Discuss the significance of the detection of pyritic versus total sulfur, as well as other elements of Table 4-5, and the implications for elevated pyritic sulfur and total sulfur in these samples relative to PAG and the CSM. In addition, discuss the importance of the other tabulated tests, such as pH net acid generation, sulfuric acid net generation, paste pH, and potentially acid-generating sulfur.	Additional discussion related to the PAG classification and implications for the OU-4b CSM has been added to the text.

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		pyritic sulfur and total sulfur, the implications of these observations were not discussed. The elevated pyritic sulfur and total sulfur detected in these samples would likely make those materials more prone to acid generation (i.e., PAG), which is relevant to the CSM, risk, and future management of these materials.		
S48	**pp. 33-34, §4.7.2.2**	The Report states that no mechanism currently exists for COI transport. This is likely true except in exceptional circumstances. However, it does appear that COIs have mobilized through the sulfide tailings to the native soil as indicated by data in some of the deep borings (STSB-01, STSB-02, and STSB-05). These borings have concentrations of copper above BCLs in the upper 10 feet. This depth interval at STSB-02 also has concentrations of uranium, arsenic, and molybdenum above BCLs, all of which were above BCLs in the overlying calcine deposits. The list of metals above BCLs in native soil (copper, iron, magnesium, molybdenum, selenium, and uranium) coincides closely to the list of mobile metals described from the MWMP results (magnesium, uranium, and copper were described as likely to be more mobile than the other elements and selenium iron and molybdenum were the next most likely based on % detected). That these metals would mobilize to the underlying native soil provides a consistent narrative. It should be noted that STSB-02, STSB-02, and STSB-05 are the three borings advanced in the western portion of OU-4b, which is proximal to the OU-4a (including the calcine ditch). In contrast to the native soil samples from STSB-01, STSB-02, and STSB-05, the upper samples of native soil from STSB-03 and STSB-04 were collected from clay layers that are consistent with a hypothetical playa lake deposit. The upper native soil sample from STSB-04 has the highest concentration of any of the samples collected in beryllium, boron, aluminum, potassium, sodium, vanadium, and zinc. These analytes were not identified as COIs, suggesting their exceedances in native soil preclude mobilization from the sulfide tailings. These samples did not have exceedances of copper, which further suggests that they do not show impacts from the sulfide tailings, and that the samples in the upper native soil on the west side of OU-4b (which showed copper above BCLs) represent a different population. The use of ponds, the saturated slurry materials, and the proximity of saturated ditches and evaporation ponds during operations may explain the historic mobilization of COIs from OU-4b to the native soil	Add a description of the possible historical mobilization of COIs as an explanation of the presence of elevated COIs in the upper native soil.	Section 4.7.2.2 has been modified to discuss the impacts of the pre-mining playa deposit and potential impacts from the Groundhog Hills and underlying Bear Deposit. In addition, as described in the response to Comment S6, the text has been modified to acknowledge past mining and mineral processing activities that may have affected subsurface conditions. As stated in response to Comment S6, historical aerial photographs (Appendix 2B) suggest that prior to the sulfide ore processing, acidic oxide process water from vat leaching operations as well as calcines were discharged to OU-4b. However, the duration of this discharge was limited and ceased once the sulfide ore processing took place. The extent of discharge to OU-4b was constrained and appears to be generally confined to the southwestern portion of the OU. In addition, any impacts from the acidic oxide process water would have been neutralized once discharge of the highly alkaline sulfide tailings began.

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		and should be introduced and evaluated in the Report as a possible explanation.		
S49	**P.34, §4.7.2.3**	The Report compares OU-4b to OU-4a groundwater impacts. Although it is correct that COI concentrations are less in OU-4b than OU-4a it is not explicit that the OU-4b COI concentrations are elevated compared to background values, nor is an explanation provided.	Acknowledge that groundwater beneath OU-4b is impacted and discuss possible historical mechanisms. Utilize network groundwater monitoring data to assess changes in indicator COIs with time to provide evidence supporting the statements in this section.	Consistent with the responses to Comments S6 and S48, the text has been modified to acknowledge past mining and mineral processing activities that may have affected subsurface conditions. However, the current transport pathway appears to be incomplete, and additional monitoring of groundwater downgradient and cross gradient to OU-4b will continue to be evaluated in the OGMP.
S50	**P.34, §4.7.2.3, ¶2, sentence 2**	**Minor comment.** The Report states "Even if COIs were present." This wording is odd as COIs are present above BCLs in the upper native soil.	Revise this sentence for consistency with the description of COIs in soil.	The sentence has been revised for clarity.
S51	**P.34, §4.7.2.3, ¶3, sentence 1**	The Report stated that the transport pathway to groundwater beneath OU-4b is incomplete and will remain so in the future. However, this is only a likelihood, not a certainty, because of unknown future extreme precipitation events.	Revise to say that the transport pathway to groundwater beneath OU-4b is likely incomplete and that the optimized groundwater monitoring program (OGMP) will track potential future COI migration down-gradient and cross-gradient from OU-4b.	Consistent with the responses to comments S6, S48, and S49, the text has been modified to acknowledge the current transport pathway appears to be incomplete, and additional monitoring of groundwater downgradient and cross gradient to OU-4b will continue to be evaluated in the OGMP.
S52	**P.34, §4.7.2.3, ¶3, sentence 3**	**Minor comment.** The statement that the groundwater beneath OU-4b has relatively low Shallow Zone groundwater COI concentrations is true compared to the groundwater beneath OU-4a but does not mean the groundwater is not impacted.	Delete or revise the sentence to acknowledge that groundwater beneath OU-4b is historically mine-impacted.	Consistent with the responses to comments S6, S48, and S49, the text has been modified to acknowledge past mining and mineral processing activities that may have impacted underlying groundwater.
S53	**P.35, §4.7.3**	**Minor comment.** The CSM does not consider the possibility of historical impacts to native soil and groundwater beneath OU-4b.	Discuss historical mining operations as a possible explanation for elevated COIs in groundwater and underlying soils, particularly in the western half of OU-4b.	Consistent with the responses to comments S6, S48, S49, and S52, the text has been modified to acknowledge historical mining activities that may have impacted underlying groundwater.
S54	**P.36, §4.8, bullet 7**	The Report stated that two-sample hypothesis testing was performed to assess COI differences by depth intervals in the upper 15 feet at locations STSB-01 though STSB-35. Based on the testing, the trends by depth were less clear than those by material type, suggesting the observed variability in the upper 15 feet is not primarily controlled by depth.	Revise the bullet to state that depth is a statistically significant variable to COI distributions below 3 feet.	Similar to the response for Comment S33, the bullet has been clarified in Section 4.7 to state that depth is a factor in the variability seen in the upper 15 feet, but that the changes in material type by depth (where VLT consistently overlays the sulfide tailings), and the differences between the VLT and sulfide tailings are also controlling factors.
S55	**P.37, §4.8, bullet 2**	The Report states that currently transport of COIs away from OU-4b is not expected but does not state explicitly why this is so.	Explain the transport mechanisms of COIs in surface runoff or to shallow groundwater.	The bullet in question in Section 4.8 states that transport is not expected because of low average annual precipitation and high evaporation reducing physical transport by runoff and leaching of COIs into the shallow soil and groundwater beneath the sulfide tailings. The water

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				erosion/surface water runoff transport pathway away from OU-4b and the transport pathway to groundwater are incomplete These transport mechanisms are discussed in Section 4.7, and a reference to that section has been added to the bullet.
S56	**P.37, §4.8, bullet 3**	The impacted groundwater beneath OU-4b is not acknowledged. The phrase "*migration of groundwater beneath the sulfide tailings was also not detected*" is confusing because it is unclear what evidence is being put forth to support that claim. The groundwater flow toward OU-4a is predicated on continued irrigation immediately north of the ACMS, causing mounding, but historical groundwater flow from the ACMS was to the north.	Clarify what is meant by the italicized phrase in the comment. State in the bullet that the historical groundwater flow was to the north, but has been influenced by agricultural irrigation, such that the OU-4a ponds are hydraulically down-gradient or cross gradient of OU-4b.	The bullet in Section 4.8 has been modified to acknowledge that groundwater flow has been assumed to be historically to the north, but the last half century of agriculture north of the Site has shifted it to the west to southwest. Agricultural use to the north of the Site is not expected to change in the future.
S57	**P.38, §5.0**	**Minor comment**. For OU-8, one of the RAO's pertains to whether the waste rock in OU-5 SWRA may be suitable for future use as a cover material.	Provide a citation to a relevant prior geotechnical study for the OU-5 SWRA, or the status of engineering studies that may be ongoing.	The Material Screening Assessment presented in Appendix 5B discusses the suitability of the waste rock as a cover material from a risk perspective. Section 5.1 has also been modified to note that geotechnical information and assessments for the South WRA are also discussed in the *ROD 1 Arimetco Facilities (OU 8) Remedy, Regrade/Cap of Heap Leach Pads and Select Peripheral Areas, Design Summary* (Wood, 2020c). Suitability of the waste rock from a geotechnical perspective will also be further evaluated in the forthcoming FS for OU-5.
S58	**P.38, §5.1.2**	**Minor comment.** The section refers to the "2001 Emergency Response Assessment". However, there is no citation in the reference section for this document for the early-2000s timeframe.	Provide a citation for the 2001 Emergency Response Assessment.	A citation for the 2001 Emergency Response Assessment has been added to Section 5.1.2.
S59	**P.39, §5.1.3, ¶2, bullet 2**	**Minor comment.** The text states that one of the six categories for evaluation of waste rock for use as cover included MWMP leachate comparisons to drinking water MCLs. However, relevance of the leachate comparisons to MCLs is not clear, because the most impact from a risk perspective would be to ecological receptors. Under a dominant evapo-concentration scenario, COIs could be drawn to the surface.	Clarify the intended meaning of bullet 2. Acknowledge that evapo-concentration is a potential release mechanism for COIs.	Section 5.1.3 is a summary of the previously submitted *Revised Data Summary Report for the Characterization of Potential Cover Materials* (ARC, 2011). Bullet 2 is summarizing information from the ARC 2011 report. Section 5.7.2 discusses transport mechanisms, including the rarity of ponded water in the South WRA. The lack of consistent standing water makes evapo-concentration not a significant release mechanism for COIs.
S60	**P.39, §5.1.4**	**Minor comment.** The section refers to the "2018 Peripheral Area Investigation".	State the purpose and relevance of the reference.	Section 5.1.4 summarizes the 2018 investigation (originally presented in the OU-8 Peripheral Area RI/FS Report) that included sampling in the W-3 and S-23 waste rock areas of OU-5. Sampling of these areas was conducted as part of the Peripheral Area Investigation to determine conditions in areas that were subject to OU-8 construction activities prior to completion of an OU-5 RI. An additional reference to OU-5 has been added to Section 5.1.4 to clarify that W-3 and S-23 are in OU-5 and are relevant to a discussion of previous investigations.
S61	**P.39, §5.1.4, ¶2, last sentence**	**Minor comment.** This sentence is missing the word feet between 197 and bgs.	Add the word "feet."	The comment has been addressed as requested.

Appendix 1A Table 1A-1
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S62	**P.47, §5.5.2.6, ¶2, last sentence**	**Minor comment.** The text stated that as a result of the data presentation and evaluation, the DQOs established in the Combined FSAP (Wood, 2019) have been met. The text does not specifically reference OU-5.	Specify that the DQOs have been met for OU-5, based on evaluation of OU-5 data.	The comment has been addressed as requested.
S63	**P.47, §5.6.1, ¶1, last sentence**	The Report states that screening and evaluation of all "analytes of interest" will be addressed in the HHRA and SLERA. It is unclear what an analyte of interest is.	Revise to state that all analytes will be addressed.	The comment has been addressed as requested with the words "of interest" removed from the text.
S64	**P. 49, §5.6.2, ¶s 1, 2, and 3**	Referring to the SWRA, the text states that the segregation between alluvium and waste rock was based on copper concentrations, where samples with concentrations over the BCL were considered waste rock, and those with concentrations below the BCL were considered alluvium. The copper BCL value is the only basis for this classification scheme. In addition, the text goes on to say that COI concentrations do not follow consistent lateral trends throughout the SWRA and that the upper 15 feet of the SWRA suggests statistically equivalent concentrations of COIs. It appears that use of the copper BCL may not be definitive for classifying alluvial (overburden) versus bedrock waste, either laterally or in the upper 15 feet of the SWRA pile. Another important point is that classification of ore and waste during mining operations would not have been performed using BCLs. Finally, it is unclear why SWRA material types are being classified, other than for use in visual determinations of material types in borehole logs.	Discuss why classification of SWRA material types is being performed from the future risk assessment, remedial design, and risk management perspectives. Evaluate precedent for using BCLs in the evaluation of waste rock.	The text in Section 5.6.2 has been modified to clarify that the classification was performed to explain the bimodal data distribution observed in the QQ plots presented in Appendix 5F, and for describing the overall nature of the South WRA material in the text, tables, and figures. As a result, it is unlikely that this classification will have an impact in future risk assessments, FS, RD/RA activities. In addition, the NDEP approved Combined FSAP and DQOs stated that OU-5 will be compared to BCLs. Similar to the rationale for classifying the South WRA material, comparison to BCLs was performed as part of the nature and extent evaluation and was not intended to provide comparable classifications to those that might have been done during mining operations.
S65	**P.49, §5.6.2, ¶1**	With respect to the SWRA, the text states that approximately two thirds of the mine-related material samples are classified as alluvium and one third is classified as waste rock. Lithologic information was not plotted on the COI depth profiles, but one would expect samples near the bottom of the SWRA piles to more likely show an "alluvial" BCL signature, because this material was emplaced initially during mining operations. However, this does not seem to be the case for copper- selenium in Figures 5-8 and 5-17, or in 5-9 and 5-18, for example. It is unclear how well the BCL designations compare to lithologies identified in the field during borehole drilling, or if other COIs show consistent expected BCL signatures. Absent detailed historical operational records, it is not possible to verify the BCL classifications for the SWRA.	Compare BCL designations to lithologic logs and % BCL exceedances for other COIs to test the efficacy of the BCL classification method. In addition, consider plotting pyritic sulfur, total sulfur, and ABA data, as they may provide useful information to augment BCL comparisons.	As described in the response to Comment S64, the text has been modified to note that the classification was performed to explain the bimodal distribution seen in the data, and the overall nature of the South WRA material. In addition, mining of the Pit occurred in a multi-step process where the pit was expanded to the north (as shown in the aerial photographs in Appendix 2B). As such, alluvial material was excavated at different time periods during mining, causing waste rock in the southern WRA to have alluvial material present inconsistently in different depth intervals and lateral areas. The waste rock in the South WRA is also likely composed of oxide and possibly transitional sulfide material, and while the sulfur and ABA data may be useful for identifying the presence of acid-generating sulfidic material, it would not be effective in identifying oxide material.

Appendix 1A Table 1A-1
Response to NDEP Comments Dated January 13, 2021 for the Draft Combined OU-4b-5-6 RI Report
Anaconda Copper Mine Site
Lyon County, Nevada

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S66	**P.49, §5.6.2, ¶2**	**Minor comment.** The text states that the CVs for each material type are generally less than the combined CV for all the materials (Table 5-1), suggesting that there is lower data variability within each material type, and that it is appropriate to evaluate the material types separately. Uncertainty is not addressed in this assertion.	Ensure that statistical comparisons utilize the parameters for non-parametric data, as noted in a previous comment. In addition, refer to the SWRA materials as "apparent alluvium" or "apparent waste rock".	The text has been modified in Section 5.6.2 to address uncertainty in the use of the CV, as well as to add a discussion using the IQR in order to support the conclusions. The text has also been modified to discuss naming conventions for alluvium and waste rock, consistent with the response for comment S64.
S67	**P.49, §5.6.3, ¶4, and Table 5-6, and P.58, §5.7.3, ¶1, last sentence**	With respect to the SWRA, 221 samples were collected from 2018 to 2020 and 9 samples were collected in 2010. Therefore, one would expect the 2010 sample results to be within the range of the more recent samples, because their median values are similar. However, the maximum concentrations of copper, selenium, uranium, and radium-226 were in the 2010 results, so it appears that the results are inconsistent.	Explain why the 2010 samples have several COIs with concentrations outside the range of the more recent samples.	As described in Section 5.1.3, the 2010 investigation included samples that were whole rock samples. In addition, a subset of the rock samples specifically targeted to represent rocks displaying a high degree of mineralization. These samples would be expected to contain higher concentrations of COIs when compared to the 2018 and 2019-2020 investigation, where no such targeting of mineralized rocks took place. The text in Section 5.6.3 has been modified to provide this rationale.
S68	**P.50, §5.6.3.1, ¶1, and §5.6.2**	For the SWRA, the text states that 70 samples were waste rock, 151 were alluvium, and 6 were native soil. Of the 40 field locations, 10 locations contained waste rock only, 23 contained alluvium only, and seven contained a mixture of waste rock and alluvium. This was the first mention in the RI of a mixed material at the SWRA. In §5.6.2 the text states that the materials in OU-5 were separated using only the BCL for Cu. It is unclear how using BCLs could identify alluvium and bedrock waste mixtures. This underscores the uncertainty in using the copper BCL only to justify the SWRA classifications.	Explain how the mixed waste rock/alluvium samples were delineated.	As described in the response to Comment S64, the text has been modified to clarify that the classification was performed to explain the bimodal data distribution observed, and for describing the overall nature of the South WRA material in the text, tables, and figures. The segregation was not intended to provide comparable classifications to those that might have been done during mining operations.
S69	**P.50, §5.6.3.1, ¶3 and §5.6.2**	With respect to the SWRA, §5.6.2 states that the alluvium and waste rock were segregated using the copper BCL, with SWRA samples classified as alluvium if they were below the BCL. In §5.6.3.1, it was noted that approximately 30% of copper concentrations from all waste rock and alluvium samples exceed the BCL. Using the BCL classification, 100% of the alluvium samples should be below the BCL, and 100% of waste rock samples should be above the BCL. As noted in previous comments, BCLs would not have played a role in the classification of ore and waste during mining operations.	Explain why 30% of the SWRA dataset cannot be classified using the copper BCL.	The text has been modified in Section 5.6.2 to clarify that the 30% represents the entirety of the samples collected in the 2018 and 2019-2020 investigations. The 30% of samples that exceeded the BCL would be classified as apparent waste rock, and the remainder would be apparent alluvium. From this classification, 100% of the apparent waste rock samples exceed the BCL, and 100% of the alluvium samples do not.
S70	**P.55, §5.7.2.1, ¶1, lines 5-6**	The document states: *"Significant water ponding has not been observed within the SWRA, and this further suggests that surface runoff is limited."* The statement does not reference how these observations were made.	Delete the statement or provide a reference that describes the observations made to support the conclusion that significant water ponding was not observed, and that surface runoff is limited.	The text has been revised to state that significant water ponding has not been observed, as supported by a review of recent publicly available aerial photographs. The conclusion that surface runoff is limited has been removed from the sentence, as it is discussed elsewhere in the section.
S71	**P.56, §5.7.2.2, ¶1, last sentence**	Regarding leaching and percolation of COIs to surface soil, the text states that selenium concentrations above the BCL are also present in native soil and concentrations are all less than twice the BCL. However, it is unclear why the observation made in the cited text is significant, nor is	Explain the reasoning and significance for using twice the BCL as the selenium impact benchmark for native soil beneath the SWRA.	The text has been modified to expand on the discussion of selenium including a discussion on uncertainty of COI transport, and potential historic impacts to subsurface soil.

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		there any explanation of the significance of using twice the BCL a benchmark. It is noted that the maximum detected selenium in native soils was 1.7 mg/kg, and 2x the 0.87 mg/kg BCL is 1.74 mg/kg, so using this benchmark of selenium concentrations in native soil are not insignificant.		
S72	**P.57, §5.7.2.3, ¶3**	The Report states that the transport of COIs to groundwater will be incomplete in the future. While this may be true, there are inherent uncertainties involved in predicting future conditions.	State that the pathway will ***most likely*** be incomplete in the future, noting that groundwater beneath the SWRA will flow toward the pit lake as further justification for not assessing the groundwater pathway.	The text in Section 5.7.2.3 has been revised to note that groundwater beneath the South WRA flows north toward the Pit Lake, and to acknowledge uncertainties in predicting future conditions. However, for the purposes of the RI and based on the information presented in the document, the pathway remains incomplete, as originally presented in Section 5.7.2.3.
S73	**§5.7.3, and Appendix 5E**	This section introduces the updated CSM for the SWRA. In Appendix 5E it is noted that only three borings (WRSB-206, 207, and 208) were advanced to the bottom of the SWRA into native soil, with other borings were only advanced to 15 feet.	Discuss why only three borings from the 2019-2020 investigation were advanced fully through the SWRA pile into native alluvium. Acknowledge this limitation in the updated CSM for the SWRA.	The three borings were advanced as specified in the approved Final Combined FSAP and were collected for nature and extent purposes. Because of the thickness of the waste rock, there is no exposure pathway to the native soil beneath the South WRA, and therefore a limited number of native samples to assess nature and extent is sufficient.
S74	**P.61, §6.1**	The text states "Sample locations from these investigations are shown on Figure 6-1. VLT in certain areas in OU-6 has been removed and used as cover in other areas of the ACMS (Figure 6-2). As a result of these activities, the material at certain sampling locations has been removed. The locations are shown on Figure 6-1. Even though VLT at these locations is no longer in OU-6, the data from them are still utilized in this evaluation as they are representative of the VLT within the OU." As shown in Figures 6-7 through 6-13 there are many sampling points that are noted in the legend as "Alluvium and Waste Rock Not Encountered" and on the figures as "NA". The boring logs for these points indicate the presence of VLT so it appears that the tailings have been removed from these areas. Since samples were never collected from below the VLT prior to or after being removed there are large sections of OU-6 that appear to be uncharacterized for current conditions. It is also not clear why radium-226 values were posted on Figure 6-14 when data for the other COI's was not posted at the same locations in Figures 6-7 through 6-13.	State that the current extent of COIs at OU-6 includes the entire area delimited for this OU, based on available data.	The text has been revised as directed. The legend for Figures 6-7 through 6-13 has been updated to correctly identify the NA (not analyzed) designations shown on the figures. As described in Section 6.1.7, the VLTSB locations were part of a pre-design component investigation that analyzed radionuclides, but not for other metals which is why no data is posted for the VLTSB locations in Figures 6-7 through 6-13.
S75	**P.61, §6.1, line 7, and Figure 6-1**	**Minor comment.** The text refers to Figure 6-1 to identify historical and more recent sample locations for OU-6. The legend in the figure identifies the red dots as standing rainwater samples collected in 2013 and the blue triangle as sample collected in 2018, but it is unclear what the blue triangle represents.	Confirm the symbol designations and the types of samples or material they represent in the figure legend.	The explanation in Figure 6-1 has been corrected to state that the blue triangle represents the 2013 standing rainwater sample location, and the red dots represent the 2018 VLT sample locations.

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
S76	**P.61, §6.1.1, ¶3**	The text states that, *"Though the material sampled was VLT, it is material that is no longer in OU-6 and is not evaluated in this RI Report."* This contradicts a statement made in Section 6.1 that VLT data was still utilized in the RI evaluation, because the data are representative of VLT within OU-6.	Correct the discrepancy between the statements in Section 6.1 and Section 6.1.1.	Section 6.1.1 has been modified to clarify that the VLT material had been removed from OU-6 prior to sampling, and therefore may not be representative as it was sampled while within a different OU. This is different from the VLT material discussed in Section 6.1 that had been sampled while still in OU-6, and then later removed. Because of this, the historical data used is still considered representative.
S77	**P.62, §6.1.3, ¶1**	The text states that that the 2009 geotechnical investigation by Black Eagle Consulting was not evaluated for this RI, noting uncertainty in whether the investigation was conducted under a QAPP.	Further evaluate whether information and data from the 2009 geotechnical investigation can be incorporated into the Final RI report if the data otherwise meet the stated DQOs.	The report has been modified to state that the Black Eagle Consulting 2009 Geotechnical Investigation Report was included and discussed in the *Implementation Work Plan - Revision 3, Anaconda Evaporation Pond Removal Action (Thumb Pond and Sub-Area A)* (BC, 2010a). Because of its presentation and previous use, it is assumed that the geotechnical data may be appropriate for use in future FS and RD/RA phases.
S78	**P.62, §6.1.3**	It is stated that VLT material ranged from clayey sand to poorly graded gravel with sand and clay. The discrepancy between the borehole material descriptions and the geotechnical sample data is not addressed.	Address the apparent discrepancy between the grain size distribution in the geotechnical sample data and the grain size distribution recorded for borings advanced for environmental samples.	The borehole descriptions consisted of poorly graded sands and gravel, which overlap with the materials described in the 2009 geotechnical investigation. The text has been modified in Section 6.1.7 to note the similarities.
S79	**pp. 62-63, §6.1.4**	**Minor comment.** The text states that, *"However, as described further in Section 6.4, only the laboratory data have been retained for data evaluation and…"* The correct reference appears to be §6.5, because §6.4 provides hydrogeology information.	Change the referenced section from 6.4 to 6.5.	The comment has been addressed as requested.
S80	**pp. 62-63, §6.1.4**	The text states "As stated above, the FPXRF data and laboratory data are presented in the original report. However, as described further in §6.4, only the laboratory data have been retained for data evaluation and presentation in this RI Report", but the FPXRF data are not presented nor evaluated in the Report. Laboratory data from the investigation are provided in Appendix 6A." Although Figure 6-1 presents data points with XRF notation the text indicates that only the laboratory analysis from these points was used.	Clarify the source of the data points depicted on Figure 6-1 (XRF and/or laboratory data). Provide the correct section reference and double-check the other referenced sections.	The section reference has been corrected as described in the response to Comment S79. Clarification has been added to Section 6.1.4 to state that during the investigation, the sample ID prefix VLT-XRF- was used during FPXRF and laboratory analyses, such that the data presented in Appendix 6A and on the Section 6 figures are laboratory data only.
S81	**P.63, §6.1.5, ¶1**	The text states *"ARC performed an investigation that collected data to support decisions regarding materials that may be used for interim covers and/or the design of final closure caps and to supplement pre-existing data (ARC, 2011)."* Upon review of other documents, Figure 2 of ARC (2011) indicates that a landfill was operated on the western boundary of OU-6 (Weed Heights Landfill), but this is not discussed in the Report and it is not depicted on any of the figures. [Ref: ARC, 2011. *Revised Data Summary Report for the Characterization of Potential Cover Materials, Yerington Mine Site,* Lyon County, Nevada]	Provide further discussion of the OU-6 Weed Heights landfill. Include whether this landfill was covered under an operating permit, the nature of the material placed in the landfill, potential contaminants and sources, and whether material from the landfill was removed as part of any EPA or NDEP interim removal actions. Include references and citations to relevant documents.	This feature is operated by Weed Heights and has not been associated with any former Anaconda or Atlantic Richfield operations. It should also be noted that while this feature was described as a landfill in Figure 2 of ARC (2011), that designation was a general descriptor and not a regulatory classification. From observations of the area during its operation, Weed Heights appears to place grass clippings, woody debris, and similar materials on the ground surface. ARC is not aware of any excavation or buried waste disposal at this location. In addition, the alluvial aquifer is not saturated beneath this feature, and the FRIR states that chemical flux between the alluvial aquifer and bedrock is not significant. This suggests that the feature would not be a source of

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				potential contamination.
S82	**P.63, §6.1.6, and Figure 6-1**	**Minor comment.** The legend on Figure 6-1 has the symbols for surface water sampling and the 2018 investigation switched.	Correct the legend in Figure 6-1.	The explanation in Figure 6-1 has been corrected to state that the blue triangle represents the 2013 standing rainwater sample location, and the red dots represent the 2018 VLT sample locations.
S83	**P.66, §6.4, ¶1**	**Minor comment.** The sentence, *"In OU-6, 2019 shallow aquifer groundwater levels in the vicinity the tailings (B/W-73S, B/W-74S, HLP-08S, PA-MW-2S, PA-MW-4S) ranged from 80.85 to 174.14 feet bmp (4,333.51 to 4,336.51 feet amsl)"*. The word "of" is missing the word of between "vicinity" and "the tailings"	Add the word "of".	The comment has been addressed as requested.
S84	**P.66, §6.4**	This section discusses groundwater depths and elevations in the shallow zone beneath OU-6. But, it doesn't include a discussion of depth-to-water relative to original ground surface.	If a monitoring well is collared on a tailings pile, ensure that the depth-to-water reference also includes the tailings pile thickness, and the depth-to-water relative to the native ground surface beneath the pile.	Approximate depth to water measurements from the native ground surface have been added to Section 6.4.
S85	**P.66, §6.5, bullet 2**	The text states that, *"2010 VLT data collected as part of the Characterization of VLT using XRF (only laboratory data from the characterization is being used in this document as described in Section 6.1.4)…"* However, §6.1.4 text only states, *"As stated above, the FPXRF data and laboratory data are presented in the original report. However, as described further in Section 6.4, only the laboratory data have been retained for data evaluation and presentation in this RI Report. The FPXRF data are not presented nor evaluated in this RI Report. Laboratory data from the investigation are provided in Appendix 6A."* [note that the §6.4 reference is incorrect, it should be §6.5]. Subsequent text in §6.5 states that, *"For the 2010 VLT XRF characterization data (Section 6.1.4), the VLT XRF Characterization DSR (ARC, 2010) did not indicate any limitations to the data with regards to data quality. Furthermore, the Cover Materials Work Plan (BC, 2010b) indicated that the VLT XRF characterization data will support the RI/FS for OU-6. As stated in Section 6.1.4, only the laboratory data generated during the VLT XRF characterization effort are used in the RI; FPXRF data are not used."* Therefore, the RI does not explain why the XRF data have not been incorporated into the analyses, particularly when §6.5 indicated that the Data Quality Assessment determined that the XRF data are usable.	Include and evaluate the 2010 VLT XRF data in the Final RI Report.	While the XRF data may be useable as screening level data, Section 6.5 has been modified to note that the FPXRF data was collected entirely at locations where laboratory samples were also collected, to assess the use of an FPXRF analyzer for field screening purposes. In addition, because the laboratory data includes additional analytes and a level of accuracy not available from FPXRF data, the FPXRF data therefore represent a less robust dataset than the corresponding laboratory data. Because of these factors, there is no practical reason for evaluating the FPXRF data in the RI report.
S86	**P.67, §6.6.1, ¶1, line 4**	**Minor comment.** It is unclear what "analytes of interest" are.	Delete the words "of interest."	The comment has been addressed as requested.

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
S87	**P.68, §6.6.2, ¶s 2, 3**	The description of the shallow and deep, 2-sample hypothesis testing for OU-6 is not supported by box plots or tables for consistency with other descriptions of statistical analysis conducted elsewhere in the Report.	Add tables and/or box plots showing the results of this analysis for the shallow and deep intervals. Provide a statistical summary for comparison of VLT between OU-4b and OU-6, similar to that for statistics presented in earlier sections, such as in Tables 4-8 and 4-9.	Box plots and a statistical summary have been added to Section 6.6.2.
S88	**P.68, §6.6.2, ¶3**	The text states that, *"VLT COI concentrations in OU-6 were also compared to the VLT that had been placed as a cover in OU-4b, described in Section 5.5.2. Figures 6-3 through 6-6 show box plots comparing the two groups of VLT. In general, concentrations of most COIs between the two groups are similar. In addition, the majority of CVs of the OU-6 VLT COIs are either lower or equivalent to the CVs of the OU-4b COIs (Table 6-2 and Table 4-2). The similarity between the two groups of VLT further suggests that there is limited variability in the VLT."* It is not clear whether the same statistical measures were used for characterizing variability in OU-6 VLT, relative to VLT cover material in OU-4b, because there was no determination as to whether the OU-6 VLT data was parametric or non-parametric. While the box plots of Figures 6-3 to 6-6 show broad similarity between VLT in OU-6 and VLT emplaced in OU-4b, the CV values reported in Table 6-2 indicate variability in VLT overall, because Table 6-2 reports that the CVs for some of the COIs are approaching 100%, and the CV for copper (used as the standard for analysis of OU4b and OU5) materials is 70%, which indicates very high variability within the sample population.	Clarify the statistical method(s) used to compare VLT in OU-6 and OU-4b, based on the appropriate CV formula for the sample distribution (parametric or non-parametric).	Section 6.6.2 has been modified to include additional detail on the statistics used and the sample distribution of the OU-6 data. In addition, a discussion of the IQR has been added to the text and to Table 6-2 to support the discussion of variability.
S89	**P.68, §6.6.3, ¶2 and P.75, §6.9, bullet 3**	**Minor comment.** The Report states that there is some lateral COI variability in OU-6 VLT materials, noting that concentrations can vary by up to three orders of magnitude. It must be noted that a 3 order-of-magnitude difference is not insignificant.	Acknowledge that the concentrations of COIs can vary significantly in VLT, and list those COIs that have this variability.	The text has been modified to note which COIs show lateral variability when compared to other COIs.
S90	**P.71, §6.6.4.1, ¶3**	The Report stated that antimony, copper, magnesium, and selenium were detected in a similar percentage of samples in both MWMP samples and the total samples. The remaining COIs (chromium, mercury, molybdenum, and radium-226) were detected less often in the MWMP samples compared to the total samples (Tables 6-2 and 6-3). However, mercury was detected in 86% of MWMP samples and 93% of soil samples, so the samples are similar.	Revise the statement to include mercury in the description of COIs with a similar percentage of detections in both MWMP and soil samples.	The comment has been addressed as requested.
S91	**P.73, §6.7.2.1**	**Minor comment.** Almost every photo in Appendix 6C shows erosional features on the sides of the VLT mounds. In addition, the parenthetical says 6B, which is the database export.	Correct the parenthetical to 6C. Describe the erosional features shown in the photographs.	The Appendix reference has been corrected to 6C. Section 6.7.2.1 has also been modified to note rilling and erosion on the VLT slopes, but to also clarify that transport of VLT away from the piles was not observed.

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
S92	**P.73, §6.7.2.2, ¶s 2,3**	The text states, *"Because of the thickness of the VLT and given the annual climatic conditions, no discernible downward percolation of precipitation or impacts to subsurface soils are expected through the entire column of the VLT. The impact of larger storm events would likely be similarly limited, given the physical setting of the waste rock and high evapotranspiration conditions at ACMS."* Most of the drilling logs for the VLTSB note moisture. For example, the log for VLTSB-01 notes that moisture content is increasing at 15 ft-bgs. The log for VLTSB-07 notes that moisture content at 9 feet is increasing with depth, suggesting that precipitation could reach the vadose zone in native alluvium and eventually the groundwater.	Reconcile the borehole observations with the conceptual model. Provide additional information supporting the claim that the leaching/percolation transport pathway in OU-6 is incomplete	The borehole logs were only advanced to 25 feet, and did not span the entire column of VLT. In addition, the majority of the boring logs either do not note an increase in moisture or note a decrease in moisture with depth. Because the boreholes only describe the upper 25 feet of the VLT, and a majority of the boreholes do not note an increase in moisture with depth, the observations do not suggest that precipitation would migrate through the entire column of VLT. In addition, the groundwater transport section (Section 6.7.2.3) has been modified to note low shallow COI concentrations in the areas of OU-6 farther away from potential HLP groundwater impacts.
S93	**P.73, §6.7.2.2, ¶s 2, 4**	The Report stated that, because of the thickness of the VLT and the annual climatic conditions, no discernible downward percolation of precipitation or impacts to subsurface soils are expected through the entire column of the VLT, but a minimum VLT thickness was not provided as a frame of reference. Photographs in Appendix 6C (e.g. Photo 1) suggest thinner areas of VLT (only a few feet), indicating that precipitation could infiltrate to native alluvium in these thinner areas.	State the minimum VLT thickness and the extent of thin areas of VLT. Add a map or representative cross section noting the range of VLT thicknesses in OU-6. Further assess the possibility of leaching/percolation and COI transport to native soil in areas where VLT is thinner.	Figure 6-2, showing approximate VLT thicknesses, based on modeling from the GMS software package has been added to the report. As shown on the figure, the majority of the VLT pile is greater than 25 feet thick, and given the annual climatic conditions, it is unlikely that these thinner areas of VLT present a significant area where percolation to the subsurface soil could occur.
S94	**pp. 73-74, §6.7.2.3, ¶1 of the section**	The Report incorrectly references OU-4b, instead of OU-6.	Revise the reference from OU-4b to OU-6.	The comment has been addressed as requested.
S95	**P.74, §6.7.2.3, ¶2**	A review of groundwater data from HLP-08S (as well as deeper intervals) and B/W-74S shows that these wells contain MIW.	Acknowledge the presence of MIW beneath OU-6 and provide an explanation for its presence.	The text has been revised to acknowledge the presence of MIW beneath OU-6. However, the most likely source of MIW beneath OU-6 is from OU-8, including the HLPs that surround the OU. Groundwater data from the OU-1 FRIR show that COI concentrations are highest beneath the HLPs and decrease beneath OU-6. This conclusion is further supported by historical operations information from the OU-8 RI which documented releases of process fluids during HLP operations.
S96	**P.74, §6.8, ¶3**	The CSM does not discuss the potential transport of COIs to underlying soil in thinner areas of VLT nor does it explain the presence of MIW in underlying groundwater.	Provide an explanation for MIW beneath OU-6 in the CSM.	Consistent with the response to Comment S93, the majority of the VLT pile is greater than 25 feet thick, and given the annual climatic conditions, it is unlikely that these thinner areas of VLT present a significant area where percolation to the subsurface soil could occur. Consistent with the response to Comment S95, the text has been revised to acknowledge the presence of MIW beneath OU-6. However, the most likely source of MIW beneath OU-6 is from the HLPs that surround the OU.

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
S97	**P.75, §6.9, bullet 5**	**Minor comment.** The text states that, *"Based on the testing, the shallow and deep intervals areas have statistically equivalent concentrations of all COIs, suggesting that there is limited variability by depth in the upper 25 feet of the VLT."* There is no context or interpretation provided for the cited text.	Provide further interpretation for this conclusion with respect to material classification, future risk assessment, or feasibility study.	It appears this comment is referring to bullet 7 rather than bullet 5. The bullet is providing information on the limited variability by depth in the upper 25 feet of the VLT, in order to provide information on the nature of COI distribution. Interpretive discussion for this statement including tables and figures are presented in Section 6.6.2. Section 6.9 is intended to summarize the results presented earlier in the document.
S98	**P.75, §6.9, bullet 7**	The text states that, *"For chromium, mercury, molybdenum, radium- 226, the lower detection frequencies in the MWMP samples compared to the solid/total samples suggests that in OU-6 these COIs are likely to be less mobile than the other COIs."* The MWMP results indicate dissolved COIs could be less mobile, but this does not consider other modes of COI transport.	Revise the statement to ensure that COI mobility, regardless of transport mechanism, in the context of the MWMP results, refers to the dissolved fraction.	It appears this comment is referring to bullet 9 rather than bullet 7. The comment has been addressed as requested.
S99	**P.81, §8.3, Last bullet**	A description of the potential mobilization of COIs through thinner areas of VLT is not included in the bullets.	Add a bullet regarding the potential transport of COIs to native soil in thinner areas of VLT.	Consistent with the response to Comment S93 and S96, the majority of the VLT pile is greater than 25 feet thick, and given the annual climatic conditions, it is unlikely that these thinner areas of VLT present a significant area where percolation to the subsurface soil could occur.
		Appendices Comments		
AS1	**Appendix 4C-1, § 2.1, P. 2**	"Laboratory Review Results" The section provides a summary of the analytical laboratory results, but it does not reference the locations of the data discussed.	Reference the locations/tables where the data that are discussed in this section can be found.	The comment has been addressed as requested.
AS2	**Appendix 4C-1, § 2.1, P. 2, 3rd bullet, Last line**	The text states, "*The frequency of data qualified based on MS/MSD results is indicative of heterogeneity in the soil samples tested*." This observation appears to contradict conclusions drawn in the RI regarding the homogeneity of some of the sampled material, because §4.2.1 states *"Because the sulfide tailings and VLT cover materials were generated under extensive, controlled beneficiation processes, the initial assumption presented in the Combined FSAP was that prior to slurry-emplacement within the impoundment, each material type was distinct physically and chemically homogeneous."* Further, §6.6.2 states, *"Unlike other OUs, OU-6 is comprised entirely of VLT. Because of the controlled processes used to create the VLT, there is inherent physical and chemical homogeneity in the material."* The relatively low (for soil-like matrices) RPDs reported in Tables 4C1-2a support the observation that most of the sampled materials are relatively homogeneous in this context, which contradicts the statement.	Expand the discussion to support the conclusion presented in the cited text or delete it.	The statement has been deleted from the text.

Appendix 1A Table 1A-1
Response to NDEP Comments Dated January 13, 2021 for the Draft Combined OU-4b-5-6 RI Report
Anaconda Copper Mine Site
Lyon County, Nevada

Comment No.	Page (P./pp), Section (§), Paragraph (¶), Line	NDEP Collated Comments	NDEP Direction to Atlantic Richfield	Response
AS3	**Appendix 4C-1, § 2.2, P. 2, 1st ¶, Line 1**	The text states, "Approved SOPs were used for sample collection and sample testing activities." It is unclear who approved the SOPs (e.g., USEPA, NVDEP, etc.?).	List the approving authorities for the referenced SOPs.	SOPs were included in the NDEP approved Combined FSAP, and therefore were approved at the same time as the FSAP.
AS4	**Appendix 5D, § 2.1, P. 2**	"Laboratory Review Results". The section provides a summary of the analytical laboratory results, but it does not reference the locations of the data discussed.	Reference the locations/tables where the data that are discussed in this section can be found.	The comment has been addressed as requested.
AS5	**Appendix 5D, § 2.1, P. 2, 3rd bullet, Last line**	The text states, *"The frequency of data qualified based on MS/MSD results is indicative of heterogeneity in the soil samples tested."* However, the relatively low (for soil-like matrices) RPDs reported in Tables 4D1-2a support the observation that most of the sampled materials are relatively homogeneous in this context.	Expand the discussion to support the conclusion presented in the cited text or delete it.	The statement has been deleted from the text.
AS6	**Appendix 5D, § 2.2, P. 2, 1st ¶, Line 1**	The text states that, *"Approved SOPs were used for sample collection and sample testing activities."* It is unclear who approved the SOPs (e.g., USEPA, NVDEP, etc.?).	List the approving authorities for the referenced SOPs.	SOPs were included in the NDEP approved Combined FSAP, and therefore were approved at the same time as the FSAP.

Abbreviations:

% = percent
ACMS = Anaconda Copper Mine Site
AGP = Acid Generating Potential
ARC = Atlantic Richfield Company
BCL = Background Concentration Limit
BC = Brown and Caldwell
CEC = Copper Environmental Consulting
COI = Constituent of Interest
COPC = Constituent of Potential Concern
COPEC = Constituent of Potential Ecological Concern
CSM = Conceptual Site Model
CV = Coefficient of Variation
DQI = Data Quality Indicator
DQO = Data Quality Objective
FPXRF = Field Portable X-Ray Fluorescence
FRIR = Final OU-1 RI Report
FS = Feasibility Study
FSAP = Field Sampling and Analysis Plan
gpm = gallons per minute
HHRA = Human Health Risk Assessment
IQR = Inter-quartile Range
MCL = Maximum Contaminant Level
mg/kg = milligram per kilogram
MWMP = Meteoric Water Mobility Procedure
NAC = Nevada Administrative Code
NAI = Sodium Iodide Detector
NDEP = Nevada Division of Environmental Protection
NV DWR = Nevada Division of Water Resources
OGMP = Optimized Groundwater Monitoring Program
OU = Operable Unit
PAG =Potentially Acid Generating
pCi/L = pico Curies per liter
PID = Photoionization Detector
PSTM = Plume Stability Technical Memorandum
QAPP = Quality Assurance Project Plan
Report = Draft Combined OU-4b, 5, and 6 RI Report
RI = Remedial Investigation
RPD = Relative Percent Difference
SD = Standard Deviation
SLERA = Screening-Level Ecological Risk Assessment
SOP = Standard Operating Procedure
SWRA = South Waste Rock Area (OU-5)
TTL = Traditional Tribal Lifeways
UCLM =
U.S. EPA = U.S. Environmental Protection Agency
VLT = Vat Leach Tailings
WRA = Waste Rock Area
yd3 = cubic yards